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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/577,545	09/11/2006	Ib Helmer Nielsen	PATRADE	2263
<div>7590 James C. Wray 1493 Chain Bridge Road Suite 300 McLean, VA 22101</div>			<div>EXAMINER LEUNG, KA CHUN A</div>	
			<div>ART UNIT 3747</div>	<div>PAPER NUMBER</div>
			<div>MAIL DATE 09/03/2008</div>	<div>DELIVERY MODE PAPER</div>

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/577,545	Applicant(s) NIELSEN, IB HELMER	
	Examiner Ka Chun Leung	Art Unit 3747	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 August 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6 is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 April 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action is in response to Applicant's amendment filed on 08/08/2008.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 08/08/2008 has been entered.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the sensors displaced in the circumferential direction of the main, as recited in Claim 3, must be shown or the feature(s) canceled from the claim(s). Presently the sensors (74, 76, 80) in Figure 4 are shown to arranged parallel to the main shaft (44) as opposed to circumferentially around the main shaft (44). No new matter should be entered. Note that this drawing objection was previously raised in the Non-final Office Action on 08/29/2007 and was not inadvertently omitted in the Final Office Action dated 04/09/2008. No remarks regarding the drawing objections were found in Applicant's reply filed on 01/29/2008.

Art Unit: 3747

4. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

5. Claim 6 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 6 refers to base Claim 1 but essentially repeats all the features presented in Claim 1.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 1-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. Specifically, base Claim 1, the phrase “preferably” in Line 4 renders the claim indefinite because it is unclear whether limitation following the phrase (i.e. whether the control shaft must be driven "synchronously") is necessary to meet the claimed limitations. Please refer to MPEP 2173.05(d).

9. Claims 6-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

10. Specifically, base Claim 6 recites “particularly” in Line 2 which renders the claim indefinite because it is unclear whether the limitation following the phrase (i.e. the engine being a marine engine) are part of the claimed invention.

11. Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Art Unit: 3747

12. Claim 9 recites the limitation "the timing point" in Line 3. There is insufficient antecedent basis for this limitation in the claim.

13. Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

14. Claim 10 recites the limitation "the servo-control" and "the backup servo-control" in Line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Art Unit: 3747

Irie et al

17. Claims 1, 5, 6, 9 and 10, as best interpreted, are rejected under 35 U.S.C. 103(a) as being unpatentable over Irie et al (DE 3 909 772 A). A copy of the translation relied upon is enclosed.

18. Irie et al discloses a lubrication device (21) for providing lubricating oil to the cylinders of a combustion engine comprising a plunger (22), a cam (23), an oil inlet (24), an intake valve (25), an exhaust valve (26), a discharge opening (27), a rocker arm (28), and an eccentric shaft (29). Further Irie et al discloses in Figure 1 a marine engine (1) with a drive shaft (3) that rotates synchronously at the speed of the engine, a phase setting device (5), a drive shaft speed detector (7), a crank angle detector (8), an engine speed detector (9), a cylinder oil temperature sensor (11) and a control device (100). The control device (100) includes a number of A/D converters (101, 102, 110, 113, 114) and a number of D/A converter s (109, 111), and an operating unit (103) that determines whether the engine is running or stopped. Additionally an external system (200) is provided which includes an outboard motor (201), remote control unit (202) and a push button (203).

19. Specifically regarding Claims 1, 5 and 6, Irie et al does not distinctly disclose whether the motor used in the external system (200) is AC or DC powered. It is well known in the art to provide either AC or DC motors to drive a shaft connected to a lubricant pump using either an AC or DC motor. For example, Winkle (U.S. Patent 5,698,031) discloses in Column 3, Paragraph 2, that the "main shaft can be driven by either a variable speed AC or DC motor". Because both Irie et al and Winkle both

Art Unit: 3747

disclose providing motors for driving shafts, it would have been obvious to one of ordinary skill in the art to substitute one type of motor for another for the predictable result of rotating a shaft to actuate oil/lubricant pumps.

20. Specifically regarding Claim 5, the D/A converter (111) connected to the phase setting device (5) can be considered as a resolver.

21. Specifically regarding Claim 10, the rotation angle setting device (4) can be considered as a servo-control and the rotation angle detector (6) can be considered as the monitoring device.

Irie et al and Onuma et al

22. Claims 2-3, 7 and 8, as best interpreted, are rejected under 35 U.S.C. 103(a) as being unpatentable over Irie et al (DE 39 09 772 A1) in view of Onuma et al (U.S. Patent 6,058,766).

23. Irie et al discloses a marine engine (1) with a drive shaft (3) that rotates synchronously at the speed of the engine, a phase setting device (5), a drive shaft speed detector (7), a crank angle detector (8), an engine speed detector (9). Irie et al further discloses that the crank angle detector (8) can be replaced by the combination of a crankshaft speed detector and a reference detector (see Page 8, last paragraph of the translation). However Irie et al does not distinctly disclose providing a reference means to detect the position of the engine crankshaft.

24. It is well known in the art to provide some type of "reference means" attached to the crankshaft in order for a crank angle sensor to detect the position of the engine.

Art Unit: 3747

Onuma et al, for example, provides a disk shaped rotary body (1) mounted to the crankshaft and provides electromagnetic pickups (3a and 3b) to generate a pulse the convex portions (2) passes by. By generating two signals, the crank angle detector is capable of accurately identifying a reference position time for a rotating angle of a crankshaft.

25. Thus it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have provided the crank angle detector of Irie et al with a disk shaped rotary body and two electromagnetic pickups, in light of the teachings of Onuma et al, in order to accurately identify a reference position time for the drive shaft.

26. Specifically regarding Claim 2, the drive shaft speed detector (7), the crank angle detector (8) and the engine speed detector (9) would inherently detect angular position and speed.

27. Specifically regarding Claim 3, the two electromagnetic pickups (3a, 3b) of Onuma et al are mutually displaced from one another along the circumference of the rotary disk.

28. Specifically regarding Claim 8, the two electromagnetic pickups (3a, 3b) of Onuma et al inherently provides tow independent outputs as illustrated in Figure 1.

Irie et al, Onuma et al, and Katogi et al

29. Claim 4, as best interpreted, is rejected under 35 U.S.C. 103(a) as being unpatentable over Irie et al and Onuma et al as applied to Claim 3 above, and further in view of Katogi et al (U.S. Patent 5,945,828)

Art Unit: 3747

30. Irie et al discloses a marine engine (1) with a drive shaft (3) that rotates synchronously at the speed of the engine, a phase setting device (5), a drive shaft speed detector (7), a crank angle detector (8), an engine speed detector (9). Onuma et al, for example, provides a disk shaped rotary body (1) mounted to the crankshaft and provides electromagnetic pickups (3a and 3b) to generate a pulse the convex portions (2) passes by. However, neither reference discloses the use of an index reference means.

31. Katogi et al discloses an engine combustion condition detecting apparatus comprising a crank angle sensor (103) connected to an engine control unit (120). Katogi et al further discloses providing a reference sensor (105) for indicating a specific crank angle and additionally providing a malfunction judging unit (207) to detect the occurrence of misfire by determining whether the signal outputted by the reference sensor (105) is constant.

32. Thus it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have provided the marine engine and lubricating device of Irie et al and Onuma et al with a malfunction judging unit and reference sensor, in light of the teachings of Katogi et al, in order to provide a means for detecting engine misfire.

Response to Arguments

33. Applicant's arguments, see Page 5, filed 08/08/2008, with respect to the formal matters raised in the Advisory Action dated 07/17/2008 and rejections in the Final Office

Art Unit: 3747

Action dated 04/09/2008 have been fully considered and are persuasive. The rejections of Claims 1-5 under 35 U.S.C. 112, second paragraph have been withdrawn.

Conclusion

34. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Eriksen (WO 02/095196 A1) and Suzuki (JP 59-54717) have been cited to show related lubricating systems. Moore et al (U.S. Patent 4,629,033) has been cited to show an oil pump system which includes both AC and DC motor driven pumps.

35. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ka Chun Leung whose telephone number is (571)272-9963. The examiner can normally be reached on 7:30AM - 4:30PM.

36. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Cronin can be reached on (571) 272-4536. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

37. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic

Art Unit: 3747

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ka Chun Leung/
Examiner, Art Unit 3747

/Stephen K. Cronin/
Supervisory Patent Examiner, Art Unit 3747